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ABSTRACT

A study was designed to test the following experimental alternative hypotheses: (1) that the correlation between listening and reading scores would be negative, or (2) that the correlation would be positive. The study also focused on determining which of the two principal teaching modalities, aural and visual, was the more effective in promoting the comprehension of expository textual material within representative groups of normal, middle-class fourth grade students. The subjects, 60 students from two elementary schools near Columbus, Ohio, were presented with two passages of expository text material, markedly different in difficulty. One passage was read to the students, and the students read the other passage to themselves. A quiz after each presentation assessed learning. Neither hypotheses was supported in any group. Results indicated that reading proficiency was significantly higher than listening proficiency regardless of the difficulty of the material. (Appendixes include the two passages and the comprehension quiz for each passage.) (MG)

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LISTENING VERSUS READING PROFICIENCIES AMONG FOURTH GRADE STUDENTS

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ABSTRACT

Two passages of expository text material, markedly different in difficulty, were presented successively to four intact classes of middle-class fourth-graders (N=60). One passage was read to the students and the other the students read to themselves. The order of the two passage-method combinations was balanced across groups. A quiz after each presentation assessed learning. Two alternative hypotheses were tested: H_1: that the correlation between listening and reading scores would be negative and H_2: that they would be positive. Neither was supported in any group. Treating the two quiz scores of each student as independent (N=120), a two (method) by two (passage) ANOVA was conducted. Among such students, reading proficiency as significantly higher than listening proficiency regardless of the difficulty of the material. Implications for the teaching of substantive content-area material are discussed.

Listening Versus Reading Proficiencies Among Fourth Grade Students

The process of education consists essentially of the transmission of facts and concepts from teachers to students. The basic unit of such transmissions is the sentence--whether spoken by the teacher or provided to the student in print.

During early childhood the aural or speaking/listening channel is the only one available for educating the normal child. In time, most children in our culture begin to utilize their visual channel, i.e., they begin to learn to read. By the time children reach the fourth grade most of them who are ever going to read effectively have begun to do so. At that point the teacher has two receptor channels available for educating the child.

While there are two receptor channels or sensory modalities available to the teacher it is rarely practical to use both to teach a given unit of information. Given the ever growing volume of information to be transmitted and the time limitations that prevail, using both modalities successively would take more time than is usually available. Using both modalities simultaneously would result in chaotic inter-channel interference. Thus, for any given unit of content-area subject matter, the teacher must decide whether to simply <u>tell</u> the students the information involved or have them <u>read</u> it for themselves.

There is substantial body of research literature that would seem to inform the classroom teacher's choice between the aural and the visual modality for transmitting any given unit of information. Unfortunately for the present purpose, some of the most elegant of these studies are cluttered by treating oral reading, i.e., reading

aloud, and silent reading as separate learning modalities, co-equal with listening (Elgart, D.B., 1978; Swalm, J.E., 1976; Miller, S.D. & Smith, D.E.P., 1990). This may very well be the case in the earliest stages of teaching reading, per se, but oral reading is hardly a practical modality for teaching other substantive content area material. Imagine, if you will, a room full of fourth-graders all reading an assigned unit on social studies aloud or, worse yet, a study hall full of students from several grades all reading from several different text books aloud.

There are, of course, some studies that compare the relative effectiveness of reading, whether silent or subvocalized, and listening in imparting comprehension of textual material (Durrell, D.D., 1969; Sticht, T.G. & James, J.H., 1984; Sticht, T.G. et al, 1974; Barbe, W.B., 1981). However, these studies differed in the cognitive nature of the material learned, the method of testing for comprehension and the ability level or levels of the students involved. Not surprisingly, the results differed as well.

One or the other of two quite different bodies of theory underlies most research seeking to determine the relative effectiveness of the aural and the visual modalities in achieving comprehension of content-area textual material in a given teaching situation. One of these, sometimes called the "split-brain" theory, holds that the two hemispheres of the brain process information in different ways and so differentially adapted to processing information of qualitatively different kinds. These kinds of information are sometimes dichotomized as "concrete vs

abstract" or "visual vs verbal". While it might seem that a person having these two qualitatively different cognitive facilities should be equally able to process information of either kind supporters of this theory hold that within each individual learner there is a tendency to "favor" one hemisphere over the other just as there is in right or left handedness.

The research hypothesis suggested by this theory is that within a randomly selected group of learners the learning proficiency of individuals through the aural and visual modalities would be inversely related. This hypothesis could be tested experimentally as follows. An appropriately qualified person would prepare two passages of expository textual material, different in subject matter, of course, but equivalent in cognitive complexity and an objective comprehension test for each. One passage would be read <u>to</u> a group of students who would then take the test on the material presented. Next, the other passage would be read <u>by</u> these same students who would then be tested on that material. With four such groups of students available all combinations of order of passages and order of presentation modalities would be covered. A significant <u>negative</u> correlation within each group between the two test scores earned by each student would support the experimental hypothesis stated above within the population of students represented by these four samples.

The other theory, sometimes called the "general intelligence" theory, holds that while the two hemispheres of the brain may be differentially specialized they operate in coordination so as to

extract the maximum amount of information from whatever kind of stimulus is being received. It holds, further, that some individuals have more of this coordinated information processing capacity (brain power) than others. To test the experimental hypothesis suggested by this theory one would conduct the same kind of experiment described above but here a positive correlation between the pairs of test scores within groups would support this hypothesis.

The present study was designed to test each of the two experimental hypotheses discussed above and, regardless of the outcome of these tests, attempt to determine which of the two principal teaching modalities, aural and visual, was the more effective in promoting the comprehension of expository textual material within representative groups of normal, middle-class fourth grade students.

METHOD

Subjects

The subjects in this study were all 15 students in each of two fourth grade classrooms in each of two elementary schools in a middle-class suburban school district near Columbus, Ohio. Thus, N=60. The distribution of all relevant demographic variables were very similar in all four classes and typical of mid-western suburban school districts generally.

Materials

This author engaged an educational research consultant to prepare two passages of expository textual material. Each passage

was to be about 200 words long and on a topic likely to be of interest to the kind of students serving as subjects but not likely to be of common knowledge among them. Moreover, one passage was to be written at the fourth grade reading level and be of moderate cognitive complexity while the other was to be written at a higher reading level and be more complex. These differences between the two passages was intended to broaden the generalizability of the results.

One passage presented the single concept that people in specialized occupations or living in unusual environments have Many Names (MN) for subcategories of things that are important in their work or to their survival. This one concept was illustrated through seven examples. According to the Fry Readability formula, this passage was written at the fourth grade level. The other passage described the system of British Coinage (BC) in use until the recent conversion to decimal coinage. It presented 17 independent facts about the relative values, metallic composition, nicknames and traditional special uses of eight different coins. A Fry Readability analysis of this passage showed it to be at the fifth grade reading level.

This consultant also prepared an 8-item objectively scoreable short-answer type quiz on each of these two passages. On each quiz six items involved the recall of facts explicitly presented in the passage while two items required inferences to be drawn from these facts. A copy of each of these two passages and its associated quiz is attached as Appendices A-1 through A-4.

Agent

The same person presented to two passages of textual material and administered the quizzes thereon in each of the four classrooms. He was the recently retired assistant superintendent in that school system and so was a familiar figure to all of the teachers and most of the students involved in this study.

Procedure

Each of the four classroom teachers involved had been briefed on the procedure that occur and informed of the time when the agent could be expected. Just prior to that time the teacher explained to the students exactly what was going to happen, assured them that their scores on the quizzes would not affect their grades but urged them to do their best.

Before visiting any of the classrooms the agent had prepared a schedule showing for each room the order in which the two passages, Many Names (MN) and British Coinage (BC), would be presented and the modality, either oral (O) or visual (V) to be used for presenting each. Table 1 depicts this schedule.

Table 1

Schedule of Presentations

	First		Second	
Room	Passage	Method	Passage	Method
A	BC	O	MN	V
B	BC	V	MN	O
C	MN	O	BC	V
D	MN	V	BC	O

In the oral method of presentation the agent read the passage once at fairly slow pace, pausing at the end of the each sentence. In the visual method of presentation the agent distributed a copy of the passage to each student to read silently. Ten minutes were allowed for this reading but all students seemed to have read and re-read the passage in less than that time. The copies of the passage were then taken up.

After the presentation of a passage by either method a copy of the corresponding quiz was given to each student. Brief instructions were given about placing one's name on the paper and where and how to record one's responses. The agent then read the quiz to the students, item by item, pausing one minute after the end of each item for the students to record their responses.

Before leaving each classroom the agent paired up the two quizzes completed by each student, stapled them together and placed each such set of 15 pairs in an envelope marked only with a coded symbol. The four such envelopes were then delivered to the consultant who had prepared the passages and quizzes to be scored. Only after the consultant had completed scoring all quizzes as the order of passages and order of presentation modalities in each coded group. With that information available he undertook the analyses of the data.

RESULTS

The two alternative research hypotheses discussed above were both tested by computing a Pearson product-moment correlation on the pairs of scores within each of the four groups and testing

these four coefficients for significance by the appropriate t-test. None of the four was significantly different from zero. Rather, they were more or less symmetrically distributed around zero (-.34, -.03, .21 and .30; df=13; p>.05).

It had been planned to use a two (modality) by two (passage) repeated-measures within factorial (Lindquist Type I) analysis of variance design to determine the direction and significance of the main effect for presentation modality, controlling statistically for passage reading level and cognitive complexity. However, the absence of any consistent correlation between pairs of scores on the repeated factor dictated treating such scores as essentially independent values and analyzing the data through a simple two-by-two ANOVA with N=120. In this design, the effects for order of passages and order of presentation modality are collapsed in each of the four passage-by-modality cell. Table 2 depicts the cell and marginal means for the data that were analyzed by ANOVA.

Table 2

Cell and Marginal Means

		Modality		
		Visual	Oral	
Passage	MN	6.67	5.97	6.32
	BC	2.63	1.70	2.17
		4.65	3.83	4.24

Table 3 presents the ANOVA summary table for the data shown above.

Table 3

Analysis of Variance Summary Table

Source	df	MS	F	p
Modality (A)	1	20.00	7.66	<.01
Passage (B)	1	516.70	197.97	<.001
A X B	1	1.00	<1	ns
Error	116	2.16		

DISCUSSION

It would be premature to conclude that, on the basis of this one study, there is no systematic relationship between a given individual's capacity to comprehend and retain expository textual material that is presented aurally and that presented visually. It is more likely that within groups of individuals with the ranges of age, intellectual development and experiential background that were studied here there will be some who seem to learn far better through one modality than the other while others seem to learn from either with almost equal facility. This mixture of modality preferences would account for the absence of convincing correlations--in either direction--between the degrees of comprehension attained under the two modalities utilized.

If it were feasible to teach students at this grade level individually it would be helpful to try to determine whether each student did, in fact, seem to learn far more readily through one

modality than the other and, if so, utilize that modality in teaching that student wherever this was possible. However, it might very well be found that the more effective modality was content-area specific. Accommodating a complex pattern of modality preferences, even for one student, would pose a difficult task for the teacher. As a practical matter, further speculation on this problem area is hardly warranted. Except for some narrow application with highly gifted or markedly retarded students, most students are going to be taught in heterogeneous classes very much like those used in this study.

While the results of this study with respect to the theoretical issues considered were equivocal those with respect to the one pragmatic issue were not. This study sought to provide an empirically determined answer to this admittedly narrow but eminently practical question: which of the two principal teaching modalities is the more effective in promoting the comprehension of expository textual material in groups of normal middle-class fourth-grade students? There is nothing equivocal about the answers seen in Table 3.

The virtual absence of any interaction in this analysis of variance simplifies the interpretation of the main effects. Turning first to the main effect of experimental interest, Modality, the superiority of the visual modality over the oral is convincing--and this is true regardless of the reading level or the cognitive complexity of the material to be learned.

While not of experimental interest *per se*, the main effect for Passage was massive indeed. This permits one to generalize the finding of the superiority of the visual modality to the most challenging of textual materials.

The principal implication of this finding for instructional planning is this: the teacher of students more or less like those studied here can rely on reading assignments to impart substantive information far more than many of them might have thought possible. Moreover, much of this reading can be done outside the normal school hours. In effect, this extends the student's learning day without extending the teacher's teaching day. If students would read a given day's lesson the night before the teacher's contact time could then be used to discuss and clarify material the students have largely already taught themselves. The classroom teacher's voice will not be stilled by this discovery that students actually can read quite well but it will be used to probe for those points that *remain* to be learned rather than to present all the material in that lesson *de novo* as though textbooks did not exist.

Appendix A-1

Important Things Have Many Names

The more important something is in our life the more names we have for it. A cowboy on a Texas cattle ranch might use the word "boat" for anything that floats on water. A fisherman in Maine might have a dozen different names for just the sailboats in his harbor and a dozen more for the motorboats. However, this fisherman might call all cattle "cows" while the cowboy would have a dozen different names for different kinds of cattle: bulls, steers, cows, heifers, calves and so on. Eskimos have over 30 names for different kinds of snow. Arab nomads have over 40 names for different kinds of camels and for camels doing different jobs. A classical musician would speak of sonatas, symphonies, preludes, tone poems and so on. However, many teenagers would simply call all of these "long hair" music. A forest ranger could name 50 kinds of trees. Most dentists could name only four or five. How many kinds of cars can you name? How many kinds of hogs can you name? Try this with several other kinds of things. It is a good way to find out what is really important to you.

Appendix A-2

Quiz on "Many Names"

Name _____

1. What kind of people have many names for different kinds of camels?

_____

2. What kind of people have many names for different kinds of snow?

_____

3. What kind of person could name 20 kinds of boats?

_____

4. What kind of person would know the difference between a sonata and a prelude?

_____

5. What kind of person would know the difference between a bull and a steer?

_____

6. How many names would an Eskimo have for camels?

_____

7. For which of the following kinds of things would fourth graders in Columbus, Ohio know the most names: fish, trees, TV shows or colleges?

_____

8. For which of the following kinds of things would fourth graders in Columbus, Ohio know the most names: race tracks, hockey teams, rock stars, or congressmen?

_____

Appendix A-3

British Coinage

Do you think it is hard to do math problems with dollars and cents? Be glad you didn't live in England 20 years ago. Up until then, they used pounds, shillings and pence. A pound was worth about three dollars then. There were 12 pence (pennies) in a shilling and 20 shillings in a pound. To make it worse, they had more kinds of coins than we do. Besides the penny, they had a half-penny and even a one-fourth penny. This last coin was a farthing. Parents often gave a few farthings to a small child on his or her birthday. All the coins mentioned so far were copper. The three-penny coin was different. It was brass and 12 flat sides. This made it easy to find in your pocket. Also, it was exactly one inch across. All the other coins were silver. The sixpence was called a "tanner". It was the custom to bake one in a Christmas fruit cake as a prize for the one who found it. Two sixpences (or tanners) made a shilling. A shilling was called a "bob". Two "bobs" made a florin. Two and one-half shilling made a half-crown. This was the largest coin. The pound, itself, was paper money like our dollar bill. Now, aren't you glad we have our kind of money?

Appendix A-4

Quiz on "British Coinage"

Name _____

1. Which British coin was worth the most?

   _____

2. Which of these coins was worth the most: a "bob", a "farthing", or a "tanner"?

   _____

3. Which coin could be used to measure length?

   _____

4. Which coin was often taken in a Christmas fruit cake?

   _____

5. Which coin was given to children on their birthday?

   _____

6. How many different copper coins were there?

   _____

7. How many florins made one pound?

   _____

8. How many sixpences made a half-crown?

   _____

REFERENCES

Barbe, W. B. (1981). What we know about modality strengths. Educational Leadership, February, 1981.

Durrell, D. D. (1969). Listening comprehension versus reading comprehension: Journal of Reading, 12, 455-460.

Elgart, D. B. (1978). Oral reading, silent reading and listening comprehension: A comparative study. Journal of Reading Behavior, 203-207.

Miller, S. D. & Smith, D. E. P. (1990). Relations among oral reading, silent reading and listening comprehension of students at differing competency levels. Reading Research and Instruction, 29, (2) 73-84.

Sticht, T. G. et al. (1974). Auding and reading: A Developmental Model. Alexandria, VA: Human Resources Research Organization.

Sticht, T. G. & James, J. H. (1984). Listening and Reading. In F. B. Murray & J. J. Piluski (Eds.) In P. D. Pearson (Ed.) Handbook of reading research, New York: Longman, 293-318.

Swalm, J. E. (1976). A comparison of oral reading and silent reading and listening comprehension. Education, 111-115.

BIBLIOGRAPHY

Adams, D. "Implementing the Reading Style Inventory: The Juanita Project". Paper presented at Teaching Reading Through Individual Reading Styles, inservice course for the Spokane Public Schools, August, 1983.

A directory of learning/teaching style practitioners. Compiled for the Learning Teaching Style Subcommittee of the Association for Supervision and Curriculum Development, March, 1983.

Barbe, W. B. "What We Know About Modality Strengths". Research that shows students have different modality strengths should be used to improve learning. Educational Leadership, Copyright: February, 1981.

Brozo, William G. "Learning How At-Risk Readers Learn Best: A Case Study for Interactive Assessment". Journal of Reading, April, 1990.

Christie, James F. "Dramatic Play: A Context for Meaningful Engagements". The Reading Teacher, April, 1990.

Dunn, R., Carbo, M. & Burton, E. "Breakthrough: How to Improve Early Reading Instruction". Phi Delta Kappen, 62, 675, Copyright: 1981.

Dunn, R. S. & Dunn, K. "Learning Styles/Teaching Styles: Should They . . . Can They be Matched?" Educational Leadership, Copyright: January, 1979.

Dunn, R. S. & Dunn, K. "Seeing, Hearing, Moving, Touching Learning Package". Teacher - V 194 - May/June, Copyright: Jan, 1979.

Ellis, S. S. "Models of Teaching: A Solution to the Teaching Style/Learning Style Dilemma". Educational Leadership, Copyright: January, 1979.

Hunt, M. "The Universe Within". Simon and Schuster, Copyright: 1982 - New York.

Ogletree, E. J. "A Curriculum for Two Modes of Consciousness". Contemporary Education, Summer, 1978, 49 (4) 203-206.

Price, G., Dunn, R. & Sanders, W. "Reading Achievement and Learning/Styles". The Clearing House, Washington, D.C., Heldref Publications, Copyright: January, 1980, 54, 5, 223-226.

Wheeler, R. "Teaching Reading According to Students Perceptual Strengths". Phi Delta Kappen Record, 17, 59-63, Copyright: 1980.